

REMARKS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested. Claims 1-30 are pending.

Applicants thank the Examiner for conducting a personal interview with Applicants' representatives on March 23, 2004. The substance of the interview is reflected in the following remarks.

In the Office Action, claims 1-27 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miyaji et al. (U.S. Patent No. 5,559,584) in view of Iizuka et al. (JP-62254352A). Applicants respectfully traverse this rejection.

Independent claim 1 is directed to a lithographic projection apparatus that includes, for example, a particle shield that generates an electromagnetic field so as to prevent particles from becoming incident on an object to be shielded.

Independent claim 23 is directed to a method that includes, for example, generating an electromagnetic field so as to prevent particles to become incident on an object within a illumination system or a projection system.

Independent claim 25 is directed to a mask handling device that includes, for example, a particle shield that reduces contamination of a patterned surface of a mask by particles.

Miyaji et al. is directed to the problem of eliminating static electricity that builds upon a reticle and damages the circuit pattern formed on the reticle. (Miyaji et al. at col. 2, lns. 49-53.) Miyaji et al. teaches that by filling the chambers of the apparatus with an inert gas containing ions, or an ionized inert gas, a charge can be removed from the wafer (Miyaji et al. at col. 3, lns. 58-61) and/or the reticle (Miyaji et al. at col. 4, lns. 41-51). As conceded by the Examiner, Miyaji et al. does not disclose or suggest a particle shield that generates an electromagnetic field so as to prevent particles from becoming incident on an object to be shielded. (Office Action, pp. 2-3.)

MPEP §2143.01 requires that the proposed modification cannot render the prior art unsatisfactory for its intended purpose. If it does render the prior art invention that is being modified unsatisfactory for its intended purpose, there is no suggestion or motivation to make the proposed modification and a *prima facie* case of obviousness cannot be made. *See In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Applicants respectfully submit that placing the electric field-formation means or magnetic field-formation means of Iizuka et al. in the Miyaji et al. apparatus would not allow the Miyaji et al. apparatus to function properly.

This is because the presence of such field-formation means would exert a force on the ions that are present in the inert gas and adversely affect the distribution of the ions, either by causing the ions to move towards the field-formation means or to move away from the field-formation means. Because Miyaji et al. is directed to solving the problem of removing static electricity from the reticle and wafer via the ionized gas, a change in the distribution of the ions would impair the ability of the Miyaji et al. device to fully remove the static electricity from the reticle and wafer, thereby rendering the apparatus of Miyaji et al. unsatisfactory for its intended purpose.

Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been made and that independent claims 1, 23, and 25, and the claims that depend therefrom, are patentable, and respectfully request that the rejection be withdrawn.

Moreover, as was discussed in the interview, Applicants respectfully submit that many of the dependent claims are patentable over Miyaji et al. in view of Iizuka et al. for the additional reason that Miyaji et al. and Iizuka et al. – even if combined, which Applicants in no way concede – do not disclose or suggest all of the features recited in the claims. For example, claim 9 depends from claim 1 and adds the feature that the particle shield comprises a grid or an array of electrodes. Iizuka et al. does not disclose a particle shield that comprises a grid or an array of electrodes. Iizuka et al. shows secondary electrodes 5, 6 that are part of the implantation apparatus and are clearly not part of the electric or magnetic field-formation means. Thus, claim 9, and claim 10 that depends from claim 9, are patentable over Miyaji et al. in view of Iizuka et al. for this additional reason. Claim 14 depends from claim 1 and adds the feature that the particle shield comprises a radiation source arranged to generate a beam of radiation. Iizuka et al. does not disclose a particle shield that comprises a radiation source. Iizuka et al. shows a beam gate 4 that is part of the implantation apparatus and is clearly not part of the electric or magnetic field-formation means. Thus, claim 14, and claims 15 and 16 that depend from claim 14, are patentable over Miyaji et al. in view of Iizuka et al. for this additional reason. Claim 27 depends from claim 25 and adds the feature that the particle shield comprises a grid or array of electrodes. As discuss above, Iizuka et al. does not disclose a particle shield that comprises a grid or an array of electrodes. Iizuka et al. shows secondary electrodes 5, 6 that are part of the implantation apparatus and are clearly not part of the electric or magnetic field-formation means. Thus, claim 27 is patentable over Miyaji et al. in view of Iizuka et al. for this additional reason.

In the Office Action, claims 28 and 29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miyaji et al. in view of Iizuka et al. and further in view of McCullough (U.S. Patent No. 6,445,439). Applicants respectfully traverse this rejection.

Claims 28 and 29 depend from independent claim 25. As discussed above, claim 25 is patentable over Miyaji et al. in view of Iizuka et al. McCullough is directed to a thermal management device for use in an EUV system that allegedly substantially reduces thermal distortion in a reticle, a problem that is prevalent in EUV systems (McCullough at col. 3, lns. 19-21), and does not change the fact that the field-formation means of Iizuka et al. would render Miyaji et al. unsatisfactory for its intended purpose. Accordingly, Applicants respectfully submit that claims 28 and 29 are patentable and respectfully request that the rejection be withdrawn.

In the Office Action, claims 1, 23, and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miyaji et al. in view of Akagi, Yuki (JP-401036916A). Applicants respectfully traverse this rejection.

Akagi teaches that an electromagnetic field can be generated between a piston of an engine and an electrode so as to affect the movement of charged particles to be generated in a flame by fuel combustion. (Akagi at English Abstract.) Applicants submit that a person of ordinary skill in the field of lithographic apparatus design would not turn to the combustion chamber art to look for solutions to problems within the lithography art.

Moreover, as discussed above, MPEP §2143.01 requires that the proposed modification cannot render the prior art unsatisfactory for its intended purpose. If it does render the prior art invention that is being modified unsatisfactory for its intended purpose, there is no suggestion or motivation to make the proposed modification and a *prima facie* case of obviousness cannot be made. *See In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Applicants respectfully submit that placing the electromagnetic field of Akagi in the Miyaji et al. apparatus would not allow the Miyaji et al. apparatus to function properly, for the same reasons that were discussed above in regard to Iizuka et al.

Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been made and that independent claims 1, 23, and 25, are patentable over Miyaji et al. in view of Akagi, and respectfully request that the rejection be withdrawn.

Applicants acknowledge with appreciation that claims 11 and 13 have been indicated to be allowable if rewritten in independent form. However, in view of the above remarks, Applicants respectfully submit that all of the claims are allowable.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may best be resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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